

Model Test Specification

Hull	KCS
Test type	Captive (PMM)
Water depth	Shallow
Appendages	Appended

TEST PROGRAM

The basic scope of tests for each water depth is given in the following table:

	Speed U/U_0 (non-dim.)	Prop. Revs. (non-dim.)	Rudder Angle δ (deg)	Drift Angle β (deg)	Sway Vel. v' (non-dim)	Yaw Vel. r' (non-dim)
STATIC TESTS						
static rudder	1.00	1.00	$\pm 0, [10], 20, 30, 35$	0	-	-
	0.80	1.00	$\pm 0, 10, 20, 30, 35$	0	-	-
	0.40	1.00	$\pm 0, 10, 20, 30, 35$	0	-	-
static drift	1.00	1.00	0	$\pm 0, 0.5, 1, 2, [4]$	-	-
	0.80	1.00	0	$\pm 0, 4, 8$	-	-
	0.40	1.00	0	$\pm 0, 8, 12, 16$	-	-
drift & rudder	0.80	1.00	$\pm 0, 10, 20, 30, 35$	± 4	-	-
	0.40	1.00	$\pm 0, 10, 20, 30, 35$	± 12	-	-
DYNAMIC TESTS						
pure sway	1.00	1.00	-	-	0.04, 0.08	-
pure yaw	1.00	1.00	-	-	-	0.05, 0.10, 0.15, [0.20]
	0.80	1.00	-	-	-	0.35
	0.40	1.00	-	-	-	0.70
yaw & drift	0.80	1.00	-	± 4	-	0.35
	0.40	1.00	-	± 12	-	0.70
yaw & rudder	0.80	1.00	± 20	-	-	0.35
	0.40	1.00	± 30	-	-	0.70

[value]: These tests shall be repeated N times to provide data for uncertainty analysis. N should be at least 3, but preferably 10.

Note: The yaw-induced roll angle is minor in shallow water. BSHC free zig-zag and turning tests with KCS at nominal GMT showed max roll angle of 2.5 deg for water depths up to $h/T=2$. Therefore tests with heel/roll are not included.

Additional tests for harbour manoeuvring data (if possible):

	Speed U/U_0 (non-dim.)	Prop. Revs. (non-dim.)	Rudder Angle δ (deg)	Drift Angle β (deg)	Sway Vel. v' (non-dim)	Yaw Vel. r' (non-dim)
pure cross-flow	0.30	1.00	0	90	-	-
pure rotation	0.00	0.00	0	0	-	∞

Note: Amplitudes and frequencies of PMM motion should be selected based on facility experience.